AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Eductor apparatus for introducing gas bubbles into a contaminated liquid in a gas flotation cell, the apparatus comprising an inlet port for clean liquid (as defined), the inlet port having an outlet end through which the clean liquid is ejected in a first direction, a gas inlet chamber adjacent to the outlet end of the inlet port for ~~introducing~~ drawing gas into the inlet chamber and introducing it to the liquid from a gas inlet port, the gas inlet chamber substantially surrounding the flow of liquid when the apparatus is in use, and a gas/liquid mixing and diffusing section wherein gas is entrained within the liquid prior to the combination being ejected from the eductor into the contaminated liquid, the gas/liquid mixing and diffusing section having a direction of fluid flow substantially transverse to the first direction such that the fluid exits from the gas/liquid mixing and diffusing section substantially radially outwardly relative to said first direction.

2. (original) Eductor apparatus according to Claim 1 wherein the inner walls of the eductor between the gas inlet chamber and the transition of fluid flow from the first direction

to the second direction are curved towards the second direction, the curve providing a smooth change of direction of gas flow prior to the fluids entering the gas/liquid mixing and diffusing section.

3. (previously presented) Eductor apparatus according to Claim 1, wherein the mixing and diffusing section is located at least partially in a space defined by an upper wall member adjacent to the gas inlet chamber and a lower wall member in the form of an impingement plate for the liquid disposed substantially opposite thereto.

4. (previously presented) Eductor apparatus according to Claim 1, wherein the mixing and diffusing section is generally annular.

5. (previously presented) Eductor apparatus according to claim 3 wherein the distance between the upper wall member and the impingement plate generally increases with increasing radial distance from the area of the impingement plate onto which the liquid flows from the first direction.

6. (previously presented) Eductor apparatus according to claim 3 wherein the impingement plate is of greater diameter than the upper wall member.

7. (previously presented) Eductor apparatus according to claim 2 wherein the impingement plate is provided with discontinuities on its surface for regulating the distribution of bubbles dissipating from the gas entrained liquid.

8. (original) Eductor apparatus according to Claim 7 wherein the discontinuities in the impingement plate are provided by apertures therein.

9. (original) Eductor apparatus according to Claim 7 wherein the discontinuities are provided by raised formations on said impingement plate.

10. (previously presented) A gas eductor induced air flotation separator including one or more gas introducing cells for bringing a gas into contact with a contaminated liquid, said separator including eductor apparatus according to claim 1.

11. (original) A gas eductor induced gas flotation separator including one or more gas introducing chambers for bringing a gas entrained liquid into contact with a contaminated liquid such as water by means of gas eductors, where contaminants in the liquid are floated to the surface of the liquid by attaching to gas bubbles emanating from said gas entrained liquid,

each said eductor having a mixing and diffusing section substantially transverse to the axis of flow of the liquid entering the eductor, the eductor further including a channel section leading from the gas introducing chamber to the mixing and diffusion section, the channel section including:

an inlet portion adjacent to the gas introducing chamber;

an outlet portion adjacent to the mixing and diffusion section, and

an intermediate portion located between the inlet and outlet portions, the diameter of the intermediate portion being less than the diameter of the inlet portion, and the diameter of the outlet portion being greater than the diameter of the intermediate portion.

12. (original) A separator according to Claim 11, wherein the inner wall of the channel section between the inlet portion and the intermediate portion is substantially frusto - conical in shape.

13. (original) A separator according to Claim 11, wherein the inner wall of the channel section between the inlet portion and the intermediate portion is shaped substantially like an open end of a flared bell.

14. (previously presented) A separator according to claim 11, wherein the inner wall of the channel section between the intermediate portion and the outlet portion is substantially frusto-conical in shape.

15. (previously presented) A separator according to claim 11, wherein the inner wall of the channel section between the intermediate portion and the outlet portion is shaped substantially like the open end of a flared bell.

16. (previously presented) A separator according to claim 11, wherein the mixing and diffusing section is located at least partially in a space defined by an outer surface of the outlet portion and an impingement plate fitted substantially transverse to the flow of liquid entering the eductor and adjacent the outlet portion.

17. (original) A separator according to Claim 16, wherein the mixing and diffusing space is generally annular.

18. (previously presented) A separator according to Claim 16, wherein the impingement plate is fitted and spaced apart from the separator by a plurality of studs.

19. (original) A separator according to Claim 18, wherein the studs are fitted through a flange projecting from the channel section.

20. (previously presented) A separator according to claim 16, wherein at least part of the outer surface of the outlet portion is cut away so that the distance between the outlet portion and the impingement plate is varied.

21. (previously presented) A separator according to claim 16, wherein at least part of the surface of the impingement plate facing the outlet portion is cut away so that the distance between the outlet portion and the impingement plate is varied.

22. (previously presented) A separator according to Claim 20, wherein the distance between the outlet portion and the impingement plate generally increases with increasing radial distance from the point on the impingement plate where the jet is directed.

23. (original) Apparatus such as an eductor for mixing a gas with a liquid and diffusing the mixture in the form of bubbles, the apparatus including:

one or more gas introducing chambers for bringing a gas into contact with a liquid such as water;

a mixing and diffusing section substantially transverse to the axis of flow of the liquid entering the eductor, and

a channel section leading from the gas introducing chamber to the mixing and diffusion section, the channel section including:

an inlet portion:

an outlet portion adjacent to the mixing and diffusion section, and

an intermediate portion located between the inlet and outlet portions, the diameter of the intermediate portion being less than the diameter of the inlet portion, and the diameter of the outlet portion being greater than the diameter of the intermediate portion.

24. (original) Apparatus according to Claim 23, wherein the mixing and diffusing section is located at least partially in a space defined by an outer surface of the outlet portion and an impingement plate fitted substantially transverse to the flow of liquid through the eductor and adjacent the outlet portion.

25. (previously presented) Apparatus according to Claim 23, further including a nozzle for receiving a flow of liquid entering the eductor and producing a jet, wherein the mixing and diffusing section is generally annular and has an outer

diameter up to 15 times greater than the diameter of the jet issuing from the nozzle.

26. (original) Apparatus according to Claim 24, wherein the minimum diameter of the outlet portion where it becomes substantially parallel to the impingement plate is less than 2 times the diameter of the jet.

27. (original) Apparatus according to Claim 26, wherein the distance between the eductor outlet and the impingement plate is between 1.5 and 6 times the depth of the liquid at the periphery of a generally circular area of the plate substantially equal in diameter to the minimum diameter of the outlet portion where it becomes substantially parallel to the impingement plate.

28. (original) Apparatus according to Claim 27, wherein the depth of the liquid at the periphery of the generally circular area is calculated as: $(\text{diameter of jet})^2/4 \times d1)$, where d1 is the minimum diameter of the outlet portion where it becomes substantially parallel to the impingement plate.

29. (original) Apparatus for mixing a gas with a liquid and diffusing the mixture in the form of bubbles, the apparatus including:

a nozzle for receiving a flow of liquid entering the eductor and producing a jet of liquid;

one or more gas introducing chambers for bringing the gas into contact with the jet of liquid;

a mixing and diffusing section being substantially transverse to the axis of the liquid flow and being defined between an outlet portion of the eductor and a body spaced apart from the outlet portion, wherein the mixing and diffusing section is generally annular and has an outer diameter up to 15 times greater than the diameter of the jet issuing from the nozzle.

30. (original) Apparatus according to Claim 29, wherein the minimum diameter of the outlet portion where it becomes substantially parallel to the impingement plate is less than 2 times the diameter of the jet.

31. (previously presented) Apparatus according to Claim 29, wherein the body includes an impingement plate and the distance between the eductor outlet and the impingement plate is between 1.5 and 6 times the depth of the liquid at the periphery of a generally circular area of the plate substantially equal in diameter to the minimum diameter of the outlet portion where it becomes substantially parallel to the impingement plate.

32. (original) Apparatus according to Claim 31, wherein the depth of the liquid on the generally circular area is calculated as: (diameter of jet)^2/(4 x d1), where d1 is the minimum diameter of the outlet portion where it becomes substantially parallel to the impingement plate.

33-37. (canceled)